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AMERICAN BLOWER COMPANY

DETROIT, MICHIGAN, U.S.A.

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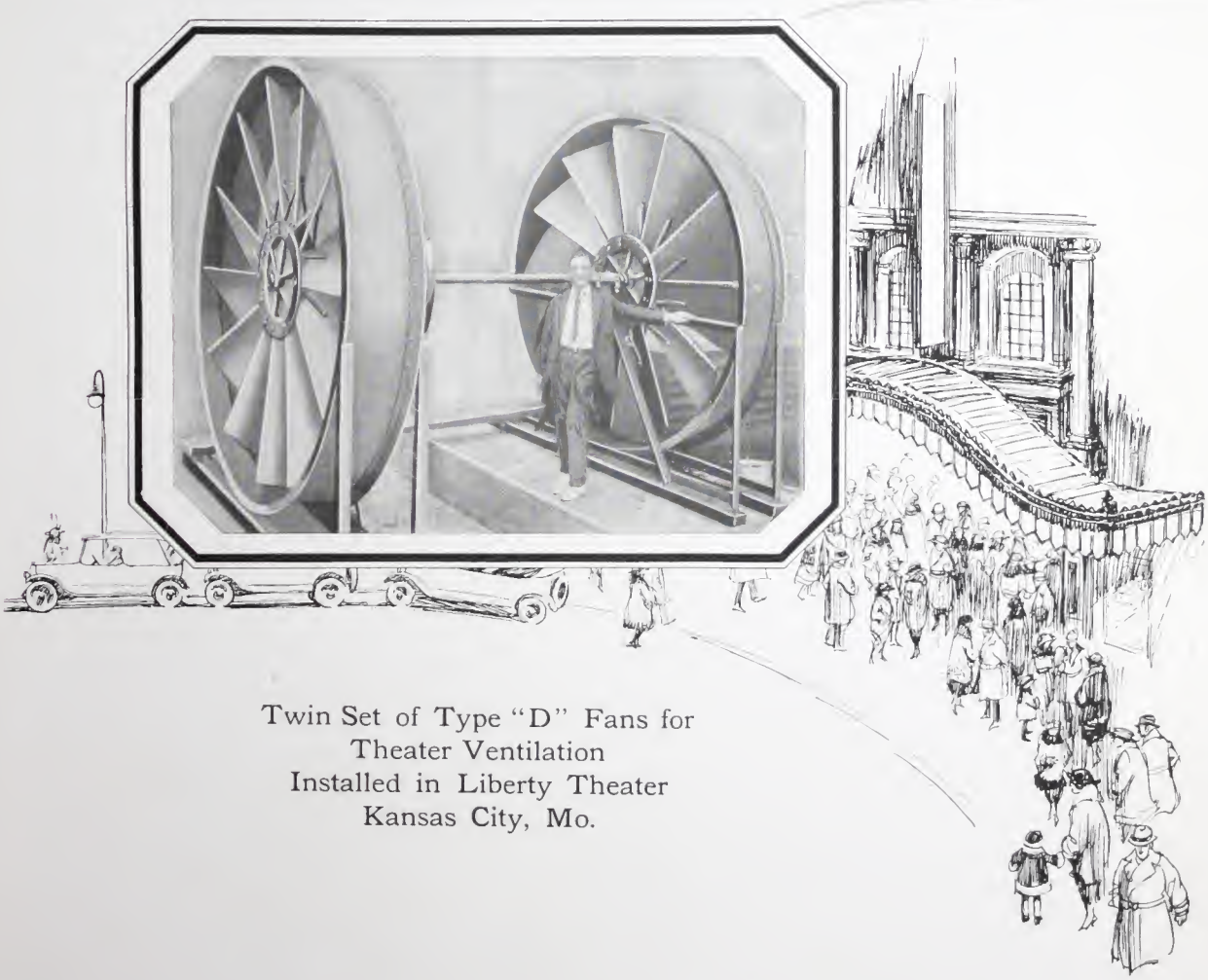
"A B C" Type "D" Disc Ventilating Fans



Twin Set of Type "D" Fans for
Theater Ventilation
Installed in Liberty Theater
Kansas City, Mo.

"Sirocco"

The "ABC" Disc Ventilating Fan

TYPE "D"

This fan is designed to deliver a maximum volume of air with the least possible expenditure of power. It is of rugged construction but sufficiently light to make its operation easy.

It is so designed that it handles air efficiently either under free delivery conditions or when discharging or exhausting through ventilating shafts and ducts, or through furnaces or steam coils for heating and drying.

Standard Base Type
Sizes 18 to 72

CONSTRUCTION

Base—A heavy iron casting, insuring freedom from vibration, is used on sizes up to 72; larger sizes have heavy flanges around the casing for attachment to wall or other supports.

Arms—Of cast iron, with a yoke in the center to support the bearings. The ends of the arms are bolted to the fan casing.

Casing—Of sheet steel, completely enclosing the fan blades.

Shaft—Of the best quality of hot rolled carbon steel.

Bearings—Fans up to size sixty are regularly furnished with sleeve type bearings held in position by set screws. Ring oiling bearings can also be furnished. Fans size 72, and larger, are provided with ring oiling self-aligning bearings.

Blades and Central Discs—These two features are the basis of the large volume of air handled and the ability of the fan to deliver air efficiently against resistance. There are twelve blades, each overlapping the one next to it, and bolted to each of two large central discs, one of which is on either side. The function of the discs is the prevention of back flow through the central area when air is being delivered against pressure. Wheels size 42 and larger have a steel band around the periphery, giving great strength to the wheel and insuring perfect balance.

This wheel design, with twelve overlapping blades and the central discs, gives a maximum capacity at a given speed, or a minimum speed for a given volume, at the same time maintaining a high efficiency.

"Sirocco"

PRINCIPAL APPLICATIONS OF TYPE "D" FANS

General Ventilation—Good ventilation is economically and hygienically necessary for all who must remain indoors. To insure good ventilation reliable equipment must be used and where a disc type of fan can be applied the Type "D" will meet the most exacting requirements.

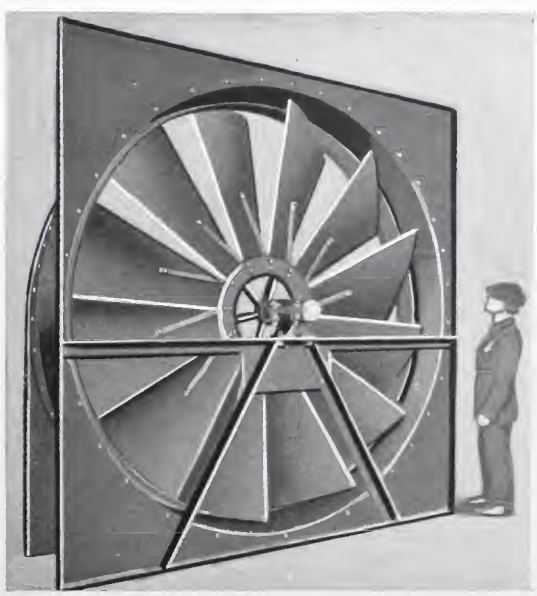
In selecting a ventilating fan make sure that the fan is large enough. The following table gives approximate air changes recommended for different applications:

Offices	5 to 10 Min.	Kitchens	2 to 3 Min.
Toilets	3 to 5 Min.	Laundries	5 Min.
Bakeries	3 Min.	Theaters	5 to 10 Min.
Cabins	5 Min.	Assembly Halls	5 to 10 Min.
Tunnels	1 to 10 Min.	Garages	5 Min.
Projecting Booths	½ to 2 Min.	Dining Rooms	15 Min.
Laboratories	3 to 10 Min.	Lodge Rooms	10 Min.
Conduits	1 to 10 Min.	Foundries	5 to 15 Min.
Ship Holds	10 Min.		

For other crowded rooms at least 30 cubic feet of air per person per minute should be allowed for ventilation only, and proportionally more if noxious gases, fumes, or heat are present.

In order to determine the volume of air required, obtain the cubical contents of the room to be ventilated by multiplying the height, by the width, by the length. Divide this cubical content by the air changes per minute required, which will give the cubic feet of air per minute which the fan must handle. In the list above, variable air changes are shown, such as in the case of assembly halls where air changes of from 5 to 10 minutes are recommended. The low figure is intended for bad conditions, the high figure for conditions somewhat above the average. Judgment should be used in applying these figures.

Removal of Heat and Vapors—The heat and vapors generated in many industrial processes are a source of annoyance, frequently retarding production, and causing rapid deterioration of the building structure and equipment. The removal of this heat or vapor usually requires the handling of large volumes of air, for which the Type "D" fan is especially adapted. Cases of this character are dye-houses, paper mills, pickling rooms, foundries, laundries, battery rooms and chemical plants. There are also industries in which dust is produced and in which beneficial results, particularly from the standpoint of the employee's health, are accomplished by the removal of the dust by the use of Type "D" Fans.



9 ft. Theater Fan Type "D", Installed in Jefferson Theater, Jefferson City, Mo.

Theaters—Adequate ventilation is essential in making a

"Sirocco"

theater or auditorium attractive to its patrons. Proper ventilation can be most easily effected by a rapid change of air within the theater, particularly if this is accompanied by an air movement that is perceptible to the audience. To effectively take care of the conditions that exist during the summer an installation of this character is almost imperative. Type "D" fans are admirably adapted for this duty and are used in large numbers for this type of ventilating system.

Motor-Driven Type "D" Fan Used With Warm Air Furnace Installed at Haughton Elevator Co., Toledo, Ohio

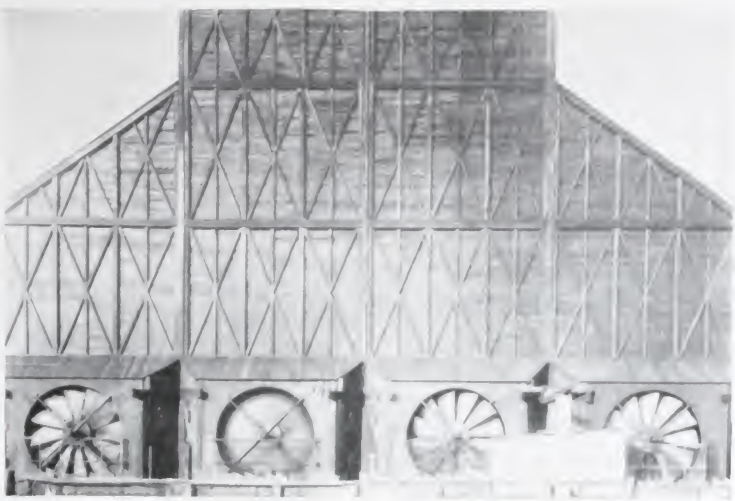
Warm Air Heating Furnaces—Frequently the movement of air in warm air heating furnaces is sluggish, even under conditions of high temperatures in the crown of the furnace and particularly so when a banked fire has lowered the temperature of the air to a point where natural gravity flow is not sustained. In installations of this character, or in systems using extensive duct systems for the distribution of the air, the proper circulation may be produced by the use of a Type "D" fan with the furnace.

Type "D" Fans in use at Essex Motor Car Co., Detroit

Mine Ventilation—Practically all mines in the early stages of development can be effectively ventilated by Type "D" fans. Where the resistance of the mine to the flow of air is low, and will not exceed one inch water gauge, Type "D" fans may be used for the permanent ventilating apparatus.

Cooling Towers—The supplying of large quantities of water at moderate temperatures can frequently be economically accomplished by the use of cooling towers. In these cooling towers the cooling effect is produced by the absorption of a large amount of water vapor. The water is cooled by giving up its heat in the form of heat of vaporization to the evaporated portion taken

up by a current of air. This requires a large volume of air at a low pressure, for which the Type "D " fan is especially suited.



Four of 16-10 foot Type "D" Fans Used for Cooling Tower.
Oklahoma Gas and Electric Co., Oklahoma City, Okla.

Drying Systems—Two vital factors in the drying of materials, as lumber, clay products, paper, fruits, vegetables, chemicals, etc., are heat and air circulation. Type "D" fans, in conjunction with heaters, have been widely and successfully used for years for supplying the heat and proper circulation of the heated air and as exhaust fans for removal of the moisture laden air.

Cooling in Industrial Plants—One of the most effective means of overcoming the effect of high temperatures in industrial plants, as steel mills, furnace rooms, glass plants, etc., is by rapid movement of air in the vicinity where the heat is generated. Permanent or portable installations of type "D" fans have proven to be an effective and inexpensive method of taking care of these conditions.

Type "D" Fan Installed at Alliance Brick Co., Alliance, Ohio

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SELECTION OF FANS FROM PERFORMANCE TABLES

On the following pages are tables of performance of Type "D" fans under free delivery conditions and also for delivery against maintained resistances. These tables are guaranteed to be correct for the conditions as stated and are based on exact tests conducted in accordance with the method prescribed in the Standard Test Code as adopted by the American Society of Heating and Ventilating Engineers and the National Association of Fan Manufacturers. Both tables are for fans exhausting from a chamber. Where an exhaust duct is used connecting to the fan casing, the capacities given in the second table will be obtained against the stated resistance at somewhat reduced speeds and with considerably less power. (See note following table.)

It is not always easy to calculate the exact resistance that a given system will offer to the flow of air. It should be noted that the characteristics of disc fans are such that at a given fixed speed a reduction in the resistance results in increased capacity and decreased power. It is advisable to make provision for a reasonable margin of safety in determining the power requirements because an increase in resistance will result in reduced air flow and greater power consumption.

As wind pressure has the same effect as increasing the resistance to the flow of air it is desirable where fans are installed in locations exposed to wind pressure to provide a wind shield. A flat or curved sheet of steel of slightly greater dimensions than the fan casings, placed away from the fan a distance approximately one-half of the diameter of the fan, will effectively prevent wind pressure obstructing the flow of air.

QUIET OPERATION

Quietness of operation depends principally upon the speed at which fan is operated. It is also dependent upon the rigidity of the support to which the fan is attached. Noise is, however, relative. A fan which would be entirely satisfactory in a store might, if operated at the same speed in a church, be audible and even objectionable. The following table is given to assist in the selection of fans for various kinds of buildings.

KIND OF BUILDING	MAXIMUM VELOCITY THROUGH FAN CASING
Church or Theater	600 to 900 feet per minute
School or Office	900 to 1200 feet per minute
Restaurant or Store	1200 to 1500 feet per minute
Kitchen or Laundry	1500 to 1800 feet per minute
Shop or Industrial Plant	1500 to 1800 feet per minute

While the above velocities are the maximum recommended it must not be overlooked that marked savings in horse power requirements will be effected by the use of lower velocities and larger fans.

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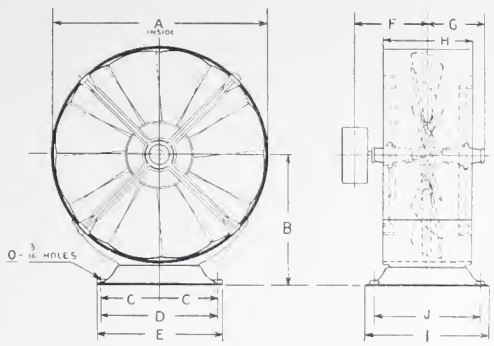
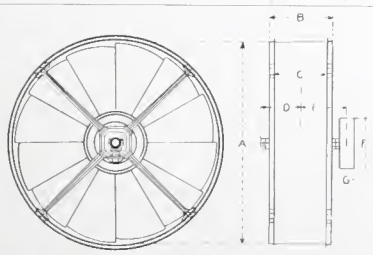
On all sizes up to 72 inches, "ABC" Type "D" Disc Fans are provided with cast-iron bases; they will be furnished with cast-iron flanges for wall mounting when desired. Angle iron flanges, as shown below, are regularly provided on sizes 84 inches and larger.



Size 18 to 72
Standard Base Type

DIMENSIONS IN INCHES

Size	A	B	C	D	E	F	G	H	I	J	Pulley		Shaft Diam
											Dia.	Face	
18	19 1/8	13	5 1/2	11	12	8 1/8	6 9/16	10	13 1/4	9 7/8	4	2 1/4	11/16
21	22 1/4	14 3/4	5 1/2	11	12	8 5/8	6 9/16	10	13 1/4	9 7/8	5	3 1/4	11/16
24	25	17	7 5/16	14 5/8	15 7/8	10 1/4	8 11/16	12 1/4	19 3/4	16 1/2	6	3 1/4	1 1/16
30	31	20 1/8	9 3/8	18 3/4	22	11 3/8	8 3/4	12 1/4	19 3/8	18 1/8	8	4 1/4	1 3/16
36	37 1/8	23 1/4	10 3/8	20 3/4	22	12 5/8	10	15 1/2	22	18 3/4	10	4 1/4	1 7/16
42	42 7/8	26	13 3/8	26 3/4	28	14	10 5/8	17	24	20 1/4	12	4 1/4	1 7/16
48	49 1/4	29 3/8	13 3/8	26 3/4	28	15 3/8	12	19 1/4	24	20 1/4	13	5 1/4	1 9/16
54	55 1/4	32 1/4	16 3/4	33 1/2	37 1/2	17 5/16	13 1/16	21 1/4	28	26 3/4	14	5 1/4	1 11/16
60	61 1/4	35 1/2	16 3/4	33 1/2	37 1/2	17 1/2	13 1/4	21 1/4	28	26 3/4	16	5 1/4	1 13/16
72	73	41 1/2	16 3/4	33 1/2	37 1/2	19 1/4	14 1/2	24	28	26 3/4	18	6 1/4	2 3/16



Size 84 and Larger
Angle Iron Flange Type

DIMENSIONS IN INCHES WITH ANGLE IRON FLANGES

Size	A	B	C	D	E	F	G
84	85 1/2	28	22	18	21	20	7 1/4
96	97 1/2	28	22	18	21	24	7 1/4
108	110	36	29	22 3/4	26	28	8 1/4
120	122	36	29	22 3/4	26	30	9 1/4
132	134	44	36 1/2	24 3/4	28	32	10 1/4
144	146	44	36 1/2	24 3/4	29	34	12 1/4

"Sirocco"
TRADE MARK

PERFORMANCE TABLE "A B C" DISC FANS, TYPE "D," FREE DELIVERY

Size of Fan.	300 Ft. Outlet Vel.			600 Ft. Outlet Vel.			900 Ft. Outlet Vel.			1200 Ft. Outlet Vel.			1500 Ft. Outlet Vel.			1800 Ft. Outlet Vel.		
	C. F. M.	R. P. M.	B. H. P.	C. F. M.	R. P. M.	B. H. P.	C. F. M.	R. P. M.	B. H. P.	C. F. M.	R. P. M.	B. H. P.	C. F. M.	R. P. M.	B. H. P.	C. F. M.	R. P. M.	B. H. P.
24	1006	222	.01	2012	444	.04	3019	666	.15	4025	888	.35	5031	1110	.68	6038	1332	1.18
30	1572	178	.01	3145	356	.07	4717	534	.23	6289	712	.54	7861	890	1.06	9434	1068	1.84
36	2264	148	.01	4528	296	.10	6792	444	.33	9056	592	.79	11320	740	1.53	13584	888	2.65
42	3083	127	.02	6166	254	.13	9249	381	.45	12332	508	1.07	15415	635	2.08	18498	762	3.60
48	4025	111	.02	8050	222	.17	12076	333	.59	16101	444	1.39	20125	555	2.72	24151	666	4.70
54	5094	99	.03	10188	198	.22	15282	298	.74	20376	396	1.76	25470	496	3.44	30564	594	5.95
60	6289	89	.03	12578	178	.27	18868	267	.92	25157	356	2.17	31444	445	4.25	37735	534	7.35
72	9056	74	.05	18112	148	.39	27168	222	1.32	36224	296	3.13	45280	370	6.12	54336	444	10.60
84	12332	64	.07	24664	127	.53	36996	191	1.80	49328	254	4.26	61660	318	8.34	73992	381	14.40
96	16100	56	.09	32200	111	.70	48302	167	2.35	64403	222	5.57	80500	278	10.89	96605	333	18.80
108	20376	50	.11	40752	99	.88	61128	149	2.97	81504	198	7.05	101880	248	13.77	122256	297	23.80
120	25157	45	.14	50313	89	1.09	75471	134	3.68	100627	178	8.70	125784	223	17.00	150940	267	29.40
132	30440	41	.16	60880	81	1.32	91320	122	4.44	121760	162	10.53	152200	203	20.60	182640	243	35.55
144	36224	37	.20	72448	74	1.57	108672	111	5.29	144896	148	12.54	181120	185	24.50	217344	222	42.25

PERFORMANCE TABLE "A B C" DISC FANS, TYPE "D"

EXHAUSTING AGAINST RESISTANCE (Measured in inches of water)

Size of Fan.	.125" W. G.			.25" W. G.			.375" W. G.			.50" W. G.			.625" W. G.			.75" W. G.		
	C. F. M.	R. P. M.	B. H. P.	C. F. M.	R. P. M.	B. H. P.	C. F. M.	R. P. M.	B. H. P.	C. F. M.	R. P. M.	B. H. P.	C. F. M.	R. P. M.	B. H. P.	C. F. M.	R. P. M.	B. H. P.
24	2099	656	.19	2970	927	.54	3642	1136	1.00	4198	1312	1.54	4698	1464	2.15	5146	1608	2.82
30	3280	524	.30	4640	744	.85	5690	908	1.56	6560	1048	2.40	7340	1171	3.36	8040	1286	4.41
36	4723	436	.43	6683	618	1.22	8194	758	2.25	9446	872	3.45	10570	976	4.84	11578	1072	6.35
42	6429	375	.59	9094	532	1.66	11152	650	3.06	12858	750	4.70	14386	840	6.59	15758	918	8.65
48	8397	328	.77	11880	464	2.18	14568	568	4.00	16794	656	6.16	18792	732	8.60	20584	804	11.28
54	10627	290	.97	15037	412	2.75	18436	506	5.05	21253	582	7.76	23782	650	10.89	26050	714	14.29
60	13120	262	1.20	18560	372	3.40	22760	454	6.24	26240	524	9.60	29360	585	13.44	32160	643	17.64
72	18893	218	1.72	26732	309	4.88	32774	379	9.00	37784	436	13.80	42282	488	19.36	46312	536	25.40
84	25716	188	2.36	36376	266	6.64	44608	325	12.24	51432	375	18.80	57544	420	26.36	63034	459	34.60
96	33588	164	3.08	47520	232	8.72	58272	284	16.00	67176	328	24.64	75168	366	34.40	82336	402	45.12
108	42508	145	3.88	60148	206	11.00	73746	253	20.20	85012	291	31.04	95128	325	43.56	104200	357	57.16
120	52480	131	4.80	74240	186	13.60	91040	227	24.96	104960	262	38.40	117440	293	53.76	128640	322	70.56
132	63500	119	5.80	89800	168	16.45	110072	206	30.20	127000	238	46.40	141986	266	65.00	155543	292	85.50
144	75572	109	6.88	106928	155	19.52	131098	189	36.00	151136	218	55.20	169128	244	77.44	185248	268	101.60

When exhausting from a duct connected to the fan casing the performance is somewhat different—the speed being approximately 10% less and the B. H. P. 30% less for the same capacity and pressure.

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